

PRODUCT

COPPER

PROVINCE OR
TERRITORY

British Columbia

N.T.S. AREA

93 N/14

REF. CU 2

NAME OF PROPERTY

LORRAINE (BLUE RIDGE)

OBJECT LOCATED - Upper Zone.

UNCERTAINTY IN METRES 300. Lat. 55°55'35" Long. 125°26'15"

Mining Division **Omineca** District

County Township or Parish

Lot Concession or Range

Sec Tp. R.

OWNER OR OPERATOR AND ADDRESS

Kennco Explorations (Western), Limited.

DESCRIPTION OF DEPOSIT

The Lorraine property is situated in the Duckling Creek Syenite Complex, a separate intrusive phase of the Hogem batholith. The complex forms a northwest-trending, roughly elliptical body approximately 5 kilometers wide and 32 kilometers long. Rocks in the complex vary considerably in texture, mafic content and specific mineralogy, but can be subdivided into two main divisions: (1) pink holofelsic syenite, varying in texture from aplitic to pegmatitic; and (2) pink, fine- to medium-grained syenite migmatite.

Copper mineralization at the Lorraine deposit occurs in syenite migmatite adjacent to the northeast contact of the complex with monzonites of an early phase of the Hogem batholith. This early phase constitutes the bulk of intrusive rock within the batholith and was emplaced as a differentiated mass during Late Triassic to Early Jurassic time.

The migmatite has a distinctive orange colour, is fine to medium grained and has a weak to well-developed gneissic foliation. see Card 2

Associated minerals or products of value

HISTORY OF EXPLORATION AND DEVELOPMENT

The property is located near the head of the north fork of Duckling Creek, some 37 miles northeast of Takla Landing. The Upper Zone of the deposit is exposed on the southwest-facing slope of a northwestward-trending ridge at elevations between 1,770 and 1,980 meters. The Lower Zone of the deposit is concealed beneath glacial drift on the valley side to the northwest. (Lat.: 55°55'40"; Long.: 125°26'40").

The malachite-stained cliffs of the Lorraine property are the most visible and best known indication of copper mineralization in the Duckling Creek area. Its presence was known for many years by local Indians, and was shown to prospectors during World War I. In 1931 Mr. F. Weber of Fort Grahame owned the Blue Ridge group of claims, covering the Lorraine showing; open cutting was reported at that time. The Consolidated Mining and Smelting Company of Canada Limited held claims covering this showing during the period 1943 to 1947; surface sampling was reported.

The 8 claim Lorraine group was staked on the showing by Kennco Explorations, Limited, in 1947. Kennex, Limited, was incorporated in 1948; the company name was changed in 1949 to Kennco Explorations (Canada), Limited. In 1948 the Upper Zone was mapped and sampled. Diamond drilling during 1949 was done in 5 holes totalling more than 2,259 feet on the southwesterly side of the ridge. This work gave indications of erratically distributed sections of mineralization ranging from 0.5 to 1.0% copper. Two other short holes were drilled at this time in the valley to the west of the ridge. Kennco Explorations, (Western) Limited during the period 1961-1963 did additional work in search of an extension or repetition of the Upper Zone. This work consisted of geochemical and rock sampling, magnetometer and induced polarization surveys, and 118 meters of diamond drilling in two AX holes in the valley west of the upper deposit.

The Granby Mining Company Limited optioned the Lorraine 1-12, Lorrex 1 and 2, and GK 1-21 claims in 1970. Work during 1970-1971 included a geochemical soil survey, a magnetic survey over approximately 100 line-miles, and diamond drilling in 22 holes totalling 9,653 feet. The Lower Zone was discovered and outlined by step-out drilling. During 1972 Granby carried out geological mapping, a magnetometer survey, 6,000 feet of trenching on Lorraine 1, see Card 2

Mineral Development Sector, Department of Energy, Mines and Resources, Ottawa.

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HISTORY OF PRODUCTION

REFERENCES

†Wilkinson, W.J., Stevenson, R.W., Garnett, J.A.; Lorraine; Porphyry Deposits of the Canadian Cordillera, The Canadian Institute of Mining and Metallurgy, Special Volume 15, pp. 397-401, 1976.

Garnett, J.A.; Geology and Copper-Molybdenum Mineralization in the Southern Hogen Batholith, North-Central British Columbia; Canadian Institute of Mining and Metallurgy, Bulletin, Vol. 67, No. 749, pp. 101-106, September 1974.

Armstrong, J.E.; Fort St. James Map-Area, Cassiar and Coast Districts, British Columbia; Memoir 252, p. 183, Geol. Surv. of Canada, 1949.

Reports of Minister of Mines, British Columbia: 1931, p. 76; 1949, pp. 98-100; 1961, p. 116.

Geology, Exploration, and Mining; British Columbia Dept. of Mines: 1970, p. 184; 1971, pp. 215-217; 1972, p. 455; 1973, pp. 370-378 †† .

White, W.H., Harakal, J.E., Carter, N.C.; Potassium-Argon Ages of Some Ore Deposits in British Columbia; Canadian Institute of Mining and Metallurgy Bulletin, Vol. 61, No. 679, p. 1330, November 1968.

Minerals Sector; Corporation Files: "Granby Mining Corporation".

Garnett, J.A.; Geology and Mineral Occurrences of the Southern Hogen Batholith; Bulletin 70, pp. 42-49, British Columbia Dept. of Mines, 1978.

MAP REFERENCES

#Geology of the Lorraine copper deposit, Sc. 1":500 ft., Fig. 1, p. 398, Report by Wilkinson, Stevenson, and Garnett.

Geology of the Lorraine Copper Deposit and Vicinity, Sc. 1":825 feet (approx.), Fig. 28, Geology, Exploration, and Mining, 1972, British Columbia Dept. of Mines.

Map 844 A, Takla, (Geol.), Sc. 1":4 miles, Geol. Surv. of Canada.

Map 5248 G, Discovery Creek, (Aeromag.), Sc. 1":1 mile.

*Map 93 N/14, Discovery Creek, (Topo.), Sc. 1:50,000.

Geology of the Southern Hogen Batholith, Sc. 1:125,000, Fig. 3, accomp. Bulletin 70, British Columbia Dept. of Mines, 1978.

Geology of the Lorraine Copper Deposits and vicinity - Duckling Creek Area, Sc. , Fig. 15, accomp. Bulletin 70.

REMARKS

Comp./Rev. By	DMacR						
Date	6-78						

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COPPER

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N.T.S. AREA 93 N/14

Card 2 -
REF. CU 2

NAME OF PROPERTY

LORRAINE (BLUE RIDGE)

DESCRIPTION OF DEPOSIT (continued)

ation. The principal minerals are potash feldspar, biotite and clinopyroxene. The mafic mineral content ranges from 20 to 40 per cent. The amount of magnetite is proportional to the mafic content of the rock.

The Lorraine copper deposit consists of two fault-bounded mineralized zones (greater than 0.25 per cent copper), referred to as the Upper and Lower zones. The Upper Zone is well exposed and deeply weathered, whereas the Lower Zone is concealed and relatively unweathered. The Upper Zone consists of one continuous mineralized body; the Lower Zone is composed of several smaller bodies. Both zones occur in foliated syenite migmatite that contains metasomatized relicts of pyroxenite, diorite, monzonite and finely banded, possibly metavolcanic, "basement" rocks. Leucocratic syenite and granite cut all units in the deposit.

Numerous faults disrupt and segregate mineralized segments within the Lower Zone. Local faults appear to be related to a major northerly trending lineament situated in the valley immediately west of the deposit. Although most mineralization is disseminated, primary sulphides are found less commonly on fractures and some faults are loci for high-grade zones. However, the major fracture patterns cut the mineralization and offset the youngest dykes.

The best mineralized sections in the Lorraine deposit contain disseminated chalcopyrite and bornite, although sulphide-bearing veinlets and fracture fillings are also present.

The Lower Zone consists entirely of primary sulphides, erratically distributed in mafic-rich lenses in the syenite migmatite. Within individual lenses, there is a mineral zonation from an outer rim of chalcopyrite with minor pyrite, through a zone of chalcopyrite with minor bornite into a core of bornite with minor chalcopyrite. Magnetite is common in veinlets and stringers and as an accessory mineral throughout this zone.

Although the Upper Zone has similar primary sulphide content, mineralization is more homogeneous and the syenite migmatite has less mafic streaking. In addition, the Upper Zone is highly oxidized and malachite, azurite, chalcocite, covellite, cuprite and limonite have been recognized.

continued-see reverse Card 2

HISTORY OF EXPLORATION AND DEVELOPMENT (continued)

2, and 4 claims, diamond drilling in 4 holes totalling 2,534 feet on Lorraine 2 and 4 claims, and percussion drilling in 23 holes totalling 8,105 feet on Lorraine 1, 2, and 4 claims. Work during 1973 included diamond drilling in 8 Winkie holes totalling 911 feet on Lorraine 4, and 2,100 feet of trenching on Lorraine 2, 4, and 1 Fraction. The Granby Mining Company in February 1975 changed its name to Granby Mining Corporation. Granby surrendered its option on the property in 1977.

"At present, the indicated potential reserves for the deposit are 4,500,000 tonnes grading 0.75 per cent copper and 0.34 ppm gold in the Upper Zone, and 5,500,000 tonnes grading 0.6 per cent copper and 0.10 ppm gold in several segments in the Lower Zone, based on a cutoff grade of 0.4 per cent copper.

The total indicated potential reserves are approximately 10 million tonnes averaging 0.7 per cent copper and 0.10 to 0.34 ppm gold." (Wilkinson, Stevenson, and Garnett, 1976).

DESCRIPTION OF DEPOSIT (continued)

In both zones, the copper mineralization (from 0.25 to 2.00 per cent) is associated with high biotite and chlorite content, potash feldspathization, pervasive sericitization, and the presence of accessory epidote and magnetite.